DOCUMENT RESUME

ED 189 915 HE 012 775

AUTHOR Young, David A.
TITLE Organization Theory: Implications for Design.
INSTITUTION American Association of Univ. Administrators, Oneonta, N.Y.: George Washington Univ., Washington, D.C. ERIC Clearinghouse on Higher Education.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE 79
NOTE 11p.
AVAILABLE FROM American Association of University Administrators, P.O. Box 536, Oneonta, NY 13820 ($0.50)
JOURNAL CIT Administrator's Update: v1 n3 Win 1980

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Administrative Organization; Bureaucracy; *Change Strategies; *College Administration; Departments; Efficiency; Higher Education; *Management by Objectives; *Organizational Theories; *Power Structure; Program Administration

ABSTRACT

This paper outlines the possibilities for scientific inquiry into the design of the university organization structure. In a theoretical context, bureaucratic management techniques were not refined enough to apply to university structures until the mid-twentieth century. Universities today are bureaucracies in that they have a formal division of labor, an administrative hierarchy, and a clerical apparatus; but they do not have direct supervision and detailed operating rules for the principal workers (the faculty) as they do for other workers. The clients, or students, of a university are treated more as members of the organization than as outsiders. As institutional goals become better defined, the university can design work units that will meet these goals and provide maximum utilization for clients and workers alike. Research has established that role performance within departments improves when related functions are grouped, and when expert services needed for departmental operation are provided within the line organization rather than from detached staff units. A number of complex integration strategies of design are reviewed and discussed. Currently it is concluded that in the American university structure it is less likely to reflect design logic than to reflect temporary preferences for dispensing personal power and prestige. Designing better university organization structures can help ameliorate this problem. A bibliography is included. (DC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED189915

ADMINISTRATOR'S UPDATE

Volume 1, Number 3 Winter, 1980

American Association of University Administrators

ERIC Clearinghouse on Higher Education

ORGANIZATION THEORY: IMPLICATIONS FOR DESIGN

by David A. Young

Executives in higher education, buried daily in words, are painfully aware of the difference between journalism and scholarship. They are eager for an occupational literature that rises above the level of "expert opinion" and practitioner manuals, to deal with their problems in the empirical and theoretical way that would be truly professional. They know there is a scientific study of administration; and they know it has not yet been applied to the university and their work in more than a few scattered cases.

The best of these cases point the way. For example, in **The Organization of Academic Work**, Peter Blau (1973) struck what has probably been the single most telling blow against the unscholarly belief of many university members that their institution is unique. Blau compared 115 universities with other organizations, including more than 1000 government agencies, to show with mathematical precision that structural elaboration is consistently related to size. He found that university work groups are created largely to satisfy the social needs of workers and that division of labor is not refined merely to exploit the economies of routine production -- facts known and occasionally used for 40 years in manufacturing organizations. The conclusion is that technological forces are secondary and social forces govern the development of **all** organizations, regardless of their particular functions.

Since organizations are alike in that respect, university management can use research findings from other settings. This paper outlines the possibilities for scientific inquiry into the design of the university organization structure. It should strengthen the professional administrator's resistance against the tenet of amateurs that "any form of organization works with the right people" -- a notion as destructive as it is complacent. Better yet, to the extent readers can control organization design, this outline will help them begin with a good foundation in administrative theory.

The University In Theoretical Context

The history of administrative science could have its beginnings traced back an arbitrary number of centuries, especially if we knew how the pyramids were built. But since management theory grew originally out of manufacturing enterprises, the modern era of management probably began with mass production. Professional administrators may be presumed to be somewhat aware of a systematic approach to specialized work organizations from Adam Smith in the late 18th century to Frederick Taylor at the beginning of the 20th, followed ten years later by the first modern organization theorist, Max Weber (Cf. Khandwalla, 1977, 170-174).

Weber outlined a concept of bureaucracy -- work groups organized into bureaus -- which included division of labor, hierarchy of authority, rules and procedures, specification of duties and powers, and formal roles carried out impersonally. After this idea took hold, a period followed when the "principles" of management seemed to imply that information flowed upward in a hierarchy and decisions flowed downward. By the late twenties, however, a human relations school of thought began to point out the reality of human aspiration and creativity anywhere within the organization structure.

Contemporary management then seems to have begun with Barnard (1938), who combined human relations and bureaucracy into a description of executive functions, mainly (a) defining purpose, (b) providing a system of communication, and (c) insuring

Dr. Young is Vice-President for Planning and Educational Services at the State University of New York, Geneseo

NOTES

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

This paper outlines the possibilities for scientific inquiry into the design of the university organization structure. It should strengthen the professional administrator's resistance against the tenet of amateurs that "any form of organization works with the right people" — a notion as destructive as it is complacent. Better yet, to the extent readers can control organization design, this outline will help them begin with a good foundation in administrative theory.

HE 012 775

essential effort. By approximately mid-century, such theoretical attempts to integrate the human and technical qualities of organization began to engender hypotheses that could be considered scientific in the sense that they lead to quantitive measure and experiment.

Still, Weber's model has withstood some of the test of time. Recently, Mansfield (1973) concluded that the English University of Aston group (Hinings, et al.) had attempted prematurely to discard it. His evidence that bureaucracy and centralization of authority are **negatively** related confirmed what Weber had believed, that bureaucracy actually facilitates delegation and respect for the expertise of lower level workers.

But is the university a bureaucracy?

So bureaucracy survives as a conceptual model. But is the university a bureaucracy? Few broadly conceived studies have dealt with the question as a problem for social science rather than professorial proclamation.

At the abstract end of the analytic continuum, Parsons and Platt (1973) advance a theoretical interpretation of the university as an "ideal type" social system. The system is examined in three main parts--(1) a core sector of graduate training and research, (2) general educaton and student socialization, and (3) professional schools -- showing the development of structure along the lines of functional exigency (i.e., to satisfy the immediate requirements of job performers in getting work done) and identifying media of exchange (e.g., money, favors, political support) across institutional and unit boundaries. The authors say the purpose of the university is to implement cultural patterns of "cognitive rationality"; but they do not attempt to account for opposing or competing purposes, such as the employability and social mobility of youth, or for the fact that highly service-oriented colleges do not do much to socialize students. Theirs is a somewhat esoteric sociological study of university purpose and process aimed at relating the administrative structure of the university to its curriculum.

More concretely, Baldridge and others (1978) studied 250 colleges and universities in connection with the Stanford Project on Academic Governance. They found that the university's client-serving and highly professional characteristics do not distinguish it from other organizations (such as business corporations, government agencies, or hospitals).What does set the university apart is fragmentation of its professional staff, lack of a definite production technology, ambiguity and internal conflict of goals, and the vulnerability which results from having an unusually large variety of external "constituents" to satisfy. These differences suggest adding political dimensions of unofficial influence to a bureaucratic model to account for discrepancies between formal authority and actual power in decision making. However, collective bargaining does give more power to technical specialists and does intensify hierarchical control patterns -- even as top management loses overall influence.

The picture emerging from such studies is that universities are bureaucracies in that they have a formal division of labor, an administrative hierarchy, and a clerical apparatus; but they do not have direct supervision and detailed operating rules for the principal workers (the faculty) as they do for other workers. Universities are professional organizations in that the faculty apply higher learning to serve clients; but faculty are not professional practitioners in the usual sense. Instead, the teacher attempts to make the student more like a scholar, which is a relationship somewhat like that between journeyman and apprentice, and which requiries treating the student in some ways as a **member** of the organization as well as a client. As for the desire of university professionals to make policy, there is nothing distinctive about it.

Faculty are not professional practitioners in the usual sense.

All in all, enough is known about ways in which the university is like and unlike other organizations to permit transfer of theories and findings. Its various characteristics can be conceptually and experimentally isolated and their equivalents studied elsewhere, even though no other single example may compare as a whole.

The Structural Beginnings--Goal Formation

Goals are explicit or implicit policies more closely related to organizational ends than to means, more closely related to purpose than to method. Designing the structure of an organization involves factoring general purpose into relatively specific goals, translating goals into operational functions, dividing and assigning functional tasks, and facilitating coordination and control. These structural decisions are reducible to organization charts and job descriptions.

Goals are explicit or implicit policies more closely related to organizational ends than to means, more closely related to purpose than to method.

Since a structure is more likely to be successful if it supports rather than opposes individual tendencies, consideration is given to the fact that design must be reinforced by human interaction and that behavior does not always conform to plan. But ultimately it is the formal goals of the organization, whether member motivation has modified them or not, which **are translated into structure.**

These goal decisions do not always show up clearly on organization charts, although they do lead directly to the more detailed structural elements, viz., job descriptions

and operating rules. Similarly, policy decisions about control and influence may be inferred from charts and from specifications of authority in the job descriptions themselves.

Simon (1949) proposed that the sequence of delegation that distributes responsibility in an organization is simply a structure that parallels the sequence of means and ends required for the accomplishment of organizational purpose: activities are integrated under a purpose determined at the highest level of the hierarchy, top managers select means to this end, the next level treats those means as ends, and so on. No one would argue that such is not the case in the university, where trustees have the authority to determine institutional goals, and professionals must find the means.

The sequence of delegation that distributes responsibility in an organization is simply a structure that parallels the sequence of means and ends required for the accomplishment of organizational purpose.

Cyert and March (1963) added to the complexity of this type of decision theory by describing an "adaptively rational" system with diverse ways of handling very limited information -- not a single-minded, totally informed, and altogether rational adaptation. Internal coordination requirements, it would follow, force the planning of shorter-range goals and the "quasi-resolution" of conflict. Uncertainty is systematically avoided, and the search for information is specifically motivated ("problemistic"). Units of the organization do not merely cooperate. They compete.

The power of an organizational unit does result partly from structural characteristics, such as a central location in the workflow or performance of functions no one else can handle (Hinings et al., 1974). Yet structure and control are not the same, as Ouchi (1977) showed when accounting for only 33% of observed differences in degree of control by measuring the combined effects of structure **and** environment. It follows that control is more a matter of interaction than structural design, and that hierarchical design does not preclude democratic control processes. This is clearly illustrated in the university, where deans with authority to "hire and fire" almost invariably rely on extensive faculty influence.

Meyer (1972) had earlier shown how large organizations separate policy from procedure, resulting in wide spans of control at the bottom, where more operating personnel can be controlled by standard procedures, and narrow spans at the top, where supervision involves much more give and take. Centralization of authority for daily decisions and issuance of formal rules to cover all decisions are **alternative** control techniques, with taller structures leading to more formal rules because of the greater distance between top managers and the operating units. In the university, one would expect statewide systems to have more rules than single-campus institutions; and one would expect a president to have fewer immediate subordinates than a department head.

The effects of computers add another dimension to the relationship between structure and control: Reif (1968) documented from many sources the expected conclusion that computers lead to centralization of decision making; and Simon (1977) based a defense of computerization on the idea that all organizations have a common three-layer structure -- work process level, programmed decision level, and non-programmed decision level. While such a model is not as mechanistic as it may seem, the accuracy of Reif's observation means that university professionals will strongly resist any any apparent tendency toward decision by computer as an encroachment on their own professional autonomy.

Sometimes the application of a control study is implicit, as when Allen (1970) found that the most effective headquarters units of conglomerates sought the least involvement in decisions at the division level (multiversity headquarters should not be involved in campus decisions); or when Kriesberg (1973) found that inter-professional cooperation only occurs when higher authority prevents one profession from subordinating another (teaching faculty should not be allowed to dominate non-teaching professionals in processes which involve both); or when Evans (1975) developed a model for measuring power distribution through dual line and staff channels (management should know the distribution in multicampus universities, where central staff officers accumulate powers that are deeply resented by campus line officers). Sometimes the application is explicit, as when Boland (1973) found that increasing size in universities leads to a high-level external relations office and to greater faculty authority over academic policy, or when Gross and Grambsch (1974) found in a study of 68 campuses that structural innovations favoring undergraduate development are less likely to succeed because highly specialized departments dominate larger institutions.

In applying research findings concerning goal formation to design, the critical question is how each organizational unit will convert its assigned mission to operational goals and actual behavior. The structure itself serves as a pattern for goal development and problem solutions. So it is not enough to design for abstract organizational purposes; one must design work units that can realistically identify with the goals pro-

The critical question is how each organizational unit will convert its assigned mission to operational goals and actual behavior.

grammed for them.

Differentiation and Simple Integration of Roles

All but the simplest organizations divide work among individuals and groups according to more or less specialized function.

All but the simplest organizations divide work among individuals and groups according to more or less specialized function. This is not to be confused with the specialized expertise of the individual, which can usually be applied to a number of different tasks --especially at higher skill levels of specialization. A psychologist may teach classes or counsel in a therapeutic setting; it is the teaching or counseling that specifies function rather than the psychological expertise. In a slightly different way, the same is true of simpler tasks: A typist may work in any organizational unit; it is the material typed and not the act of typing that fully differentiates this role. (Remembering this and not treating typists as interchangeable machine parts would do wonders for many organizations.) Specialization of function refers to the work produced rather than just the particular training and skill employed.

One of the most important findings of administrative science in its earlier stages has to do with the dysfunctions of overspecialization in task design. It has been fairly well demonstrated that role performance improves with the opportunity for role enlargement and that there is a return on time invested in teaching new functions (Argyris, 1960). Technical restrictions of role are usually not reached before limits imposed by managers who feel a need to dominate subordinates (Golembiewski, 1964; Krupp, 1961). Along these lines, then, research has established that role performance within departments improves when related functions are grouped as much as technical limits will allow, and when expert services needed for departmental operation are provided within the line organization rather than from detached staff units (V. Thompson, 1962). Assemblers, for example, work better in teams where all jobs are together around the product than they do where everyone within a group has the same job and the product passes from group to group; and, ideally, the product engineer is part of the manufacturing unit rather than just a member of a remote engineering staff office.

Research has established that role performance within departments improves when related functions are grouped.

Gulick and Urwick (1937) had discussed the possibilities of dividing the work of an organization by function, product, territory (i.e., location), or time. Subsequent authors expanded on the possibility of using combined criteria, and on the fact that "product" can stand for a number of different programmed goals relating to goods or services. A more recent term is "project," and in service organizations it stands for a client or a group of clients for whom the same particular service is to be performed. Since a project implies time limits, the term "program" may be used to denote a continuous operation involving several functions; and "program organization" means simply that work groups are organized around these goals, with identical functions performed in more than one such group.

The difficult problem of how to differentiate and by how much is addressed by Eric Miller (1959; Miller & Rice, 1967), who first observes that a simple group can resist becoming prematurely complex if members understand or can assume the roles of others, and if they are aware of close interdependence. When coordination does require adding an integrative supervisory role and forming separate groups, each unit should have a "whole task." While this advice sounds initially not very helpful, it turns out that there is at least one criterion for wholeness of task: when relationships across group boundaries are more intense than those within, each group probably does not have a whole task. For example, in a university faculty one would attempt to determine whether psychologists work more closely with biologists or sociologists in deciding how to structure colleges of natural science and behavioral studies.

Deciding how to differentiate supervisory roles at higher management levels is more difficult.

However, deciding how to differentiate supervisory roles at higher management levels is more difficult because it is usually much harder to define a whole task consisting of a set of already defined whole tasks. Inserting a new echelon of management is problematic for that reason alone, even putting aside the problem of removing functional levels further from the highest authority. At the operating level one can come close to differentiation along the actual boundaries of task relations among workers. But at higher levels sometimes the best one can hope for is a relationship among individuals reporting to the same supervisor, which is equal to their coordinating relationships with persons outside the group.

Miller (1959) comes explicitly to a related conclusion that can be inferred from other analyses: management is easier if each unit has approximately the same size or responsibility, or both. Under conditions of relatively equal unit power, less managerial intervention is needed for coordination. Peers, whether individuals or groups, are more likely to get along without the antagonisms that necessarily result when one unit exploits the structural weakness of another.

Blau and Schoenherr (1971) also deal with the relationship between horizontal

differentiation (i.e., division of operating responsibilities) and the vertical dimension of differentiation -- the hierarchy, with its spans of control and multiple levels of authority, which can be represented graphically as a pyramid. Their main conclusion from a large empirical study is that increasing size generates structural differentiation along both dimensions (but at decelerating rates), raising managerial requirements. In other words, as the organization gets bigger while maintaining the same work content, it develops not only more or larger work groups but more kinds of groups and more levels of supervision, complicating the duties of management. Taller structures, those with more levels of authority, are found to have fewer units directly under top management. For example, a five-unit organization expanding to fifteen and adding a managerial level becomes 1•3•5 = 15 rather than 1•5•3 = 15. This relieves top executives of some supervisory duties so they can concentrate more on policy.

As the organization gets bigger while maintaining the same work content, it develops not only more or larger work groups but more kinds of groups and more levels of supervision, complicating the duties of management.

Some case studies do show that narrow spans of control facilitate upward communication instead of retarding it, where experts are employed at the operating level (Brewer, 1971). Professionals need more upward communication than nonprofessionals because higher authorities can be expected to know less about the work of experts. So it appears almost paradoxically that hierarchy and expertness are positively related; and Worthy's (1950) classic evidence for the advantages of flat organization (fewest possible levels of hierarchy) may apply mostly to non-expert workers, or to situations in which the experts are all in the same profession.

Furthermore, regardless of expertness, one would obviously expect to find narrow spans of control in the supervision of heterogeneous roles and broad spans in the supervision of homogeneous roles. In the university, one would expect to find broader spans of control in academic programs, where the operating roles are essentially the same, than in student personnel or internal support services, where there are many different roles.

Having differentiated functions into work roles, the next design problem is integrating roles so as to obtain an orchestrated performance. In the area of communication, it has been generally established that performance improves with the proportion of coordinating channels that are direct and worsens with the proportion that require relaying of messages. Thus, in work groups concerned with a mutual problem, power develops in roles that relay messages, and group decision is superior to individual consultation between a leader and members (Bavelas & Barrett, 1951; Likert, 1961). If coordination between two or more departments is required, role performance in all of them improves when representatives from each become members of a permanent decision-making group (Likert, 1961; V. Thompson, 1962).

In the area of authority, it is not only demonstrable but obvious that individual and departmental performance improve when decisions requiring expertness are made by qualified experts (Etzioni, 1961; V. Thompson, 1962). This is another testimony to the superiority of line over line-staff structures, but it does raise an interesting design problem if there is a wide variety of professional roles at the operating level. In that case authority consistent with expertness requires more departmentalization, not just because more upward communication is needed for depth of understanding but because its content is more likely to be beyond the breadth of a narrowly specialized supervisor. Departments will consequently be created to separate functions that would otherwise be closely related, merely because no one person could **expertly** supervise more than one of the functions.

What coordinating structure works best?

What coordinating structure works best? Becker and Baloff (1969) compared experimentally the simplest types of hierarchical, committee, and division-of-labor organizations in problem solving. The last type, which is really a flat hierarchy with clear delegation, was consistently more efficient. But in the world of real organizations, efficiency factors can vary with task, and success probably requires different organizing strategies in enterprises with different technologies (Woodward, 1965). Burns and Stalker (1961) facilitated inter-industrial comparisons by distinguishing conceptually between "mechanistic" and "organic" structures, defining the latter as those which are relatively more democratic, dynamic, and informal. A great deal of research has followed from their work, along with Woodward's, toward the objective of determining what organization structure better suits each type of production (e.g., a few complex products, a large number of simple items, or a continuously flowing material). Whatever organizing plan is adopted, the behavioral foundations of organization theory are consistent with the recent advice of McKelvey and Kilmann (1975): involving all organization members in the design decision will increase the probability of maximum interdependence within work groups and minimum interdependence between groups.

Complex Integration and Strategies of Design

Hypotheses developed from research are useful in determining a strategy of organization design. For example, Triandis (1966) proposes that persons with similar ability levels work best together, that larger work groups reduce individual participation and so require more leadership, and that large organizations function better when the hierarchical pyramid is disproportionately taller. Miller and Rice (1967) begin with workflow to define systems of activity and their boundaries.

Lorsch (1970) expands the concepts of differentiation (division of labor) and integration (coordination and control) to include individual orientation to work, adding concepts of environmental uncertainty and dominant competitive issue. He then proposes a design sequence of (1) grouping activities into units, first by similarity of functions and second by need for integration; (2) designing integrative devices, first for herarchical control and second for lateral coordination; and (3) structuring individual units. His test of adequate authority for coordinating roles is their capacity for conflict resolution.

James Thompson (1967) develops a design sequence by analyzing the need for integration into three types of inter-unit dependence: pooled (units contribute work to a whole result in no particular sequence), sequential (output of one unit is input to another), and reciprocal (sequential in both directions). He concludes from investigation that organizations attempt to minimize coordinating costs by grouping the most contingent reciprocally dependent units first, then clustering less dependent units. Next, sequentially dependent units are placed in proximity. Finally, units with similar processes are related in order to facilitate standardization of procedures. Higher order clustering follows the same pattern -- reciprocal, sequential, homogeneous.

As an organization grows, the design strategy may have to change.

As an organization grows, the design strategy may have to change. Chandler (1966) studied what happened to 74 organizations that became so complex their specialized departments lost effectiveness. Generally, they divided a functional structure into a number of divisions, each with the original functional arrangement but assigned to a different project (program). Obviously, that strategy is limited to organizations in which programs are sufficient in duration to justify permanent or semi-permanent structural changes. Likert (1967) similarly deals with the problem of the large, functionally differentiated organization that must decide whether to switch partly or entirely to differentiation by program, or to split into geographically separate multifunctional suborganizations. He proposes cross-functional coordinating teams with leaders from the next higher level of authority. In addition to coordinating, these teams train and aid cross-functional teams at lower levels, and they monitor quality of functional performance. Because of the group communication structure, departments must cooperate. They cannot use organizational communication channels to critize each other secretly.

Should workers who perform the same function be grouped together or assigned to separate programs?

Should workers who perform the same function be grouped together or assigned to separate programs? (For example, should academic advisors work together in a center or be assigned each to a unit where students major in one area of study?) Walker and Lorsch (1970) note that routine tasks are better suited to functional structure, while problem-solving tasks lend themselves to program structure; but they conclude that it is not necessary to choose. Compromise designs are available, including (1) cross-functional integrating teams, as in Likert's plan, (2) full-time program coordinators without direct authority, and (3) matrix organization.

The matrix overlays a program structure on a functional structure, resulting in two types of manager, each with authority and a separate line of report to the chief executive. Effective use of program authority, according to Burns (1970), requires concentrating on coordination and not attempting to acquire functional skills, i.e., on specifying **what** is required rather than **how** to achieve it (Cf. Kingdon, 1973). Burns argues that the major integrative effort as it relates to a program must be brought inside an office or larger unit that coordinates all programs. Only one representative of such an office has contact with any particular functional unit, acting as liaison for all programs to which the functional unit contributes work. If different individuals were to com-

municate to one functional unit, determination of priorities among tasks would escape control by the program management office and fall to the functional managers by default, since they would have to decide which liaison to give preference in scheduling their work.

There are several interesting theories on the evolution of matrix design in the typical organization. Newman (1973) thinks the pure functional structure first grows in complexity by adding centralized administrative services as line units before evolving into a line-staff structure. (It is important to keep in mind the distinction between line services, which provide direct operating assistance to the main production units, and staff services, which consist essentially of expert advice to be used in operational decision making by line officers.) After line-staff comes the matrix which, in its true form, confers equal status upon program and functional managers and enforces that equality from the top.

Galbraith (1973, 1977) interprets observed variations in organization structure as differing strategies of adaptation to information-processing requirements. These requirements differ among organizations according to how uncertain they are of the exact means to achieve goals, how diversified are their products or services, and how refined are their divisions of labor. More information than a simple hierarchy can handle causes an "overload" problem. One solution involves reducing the necessity for information, such as by splitting the whole organization into self-contained units. The second solution is to increase information-processing capacity, by adding "vertical" systems which send more information up and down the hierarchy, or by creating "lateral" relations which send more information between units at the same level. These lateral relations could range from occasional contact, through permanent coordinating structures, to a complete matrix. After a matrix is instituted, control continues to shift as program managers pass through a series of stages on the way to equal authority with functional managers.

Finally, a theoretical model of the design process itself is put forward by Herbst (1974), who develops at length the idea of integrating physical and behavioral sciences. He proposes that a social system of interpersonal processes (relationships) and a technical system of work processes (tasks) can be integrated into a single sociotechnical system, which becomes the complete organization structure. Applying this multidisciplinary strategy to the university, Herbst concludes that the structural design must allow temporary work groups to emerge as needed, for special curricular demands or research projects, positioning them alongside permanent units of the organization.

Well known examples of American universities that have moved from simple to complex designs include the University of Wisconsin at Green Bay and the University of California at Santa Cruz (McHenry, 1977). At Green Bay, instruction is organized into colleges on the basis of interdisciplinary student curricula (programs) rather than disciplinary faculty specialties (functions). At Santa Cruz teaching faculty have dual responsibility to an interdisciplinary college program authority **and** to a disciplinary department functional authority -- a mature matrix within the academic organization.

Davis and Lawrence (1977) attribute the decision to use a matrix design largely to external pressure for a dual program-function focus. In the university, however, the pressure for a functional organization seems to originate with the faculty, who are more comfortable within departments of like-minded specialists. The pressure for program organization, on the other hand, is in a sense external; it comes from students who cannot identify with a faculty discipline and wish to be grouped according to their interdepartmental, career-oriented curricular programs. Design of the university to serve students rather than faculty has never been a widespread practice.

Design of the University Organization Structure

Any human organization must decide what work it will do, how the work will be divided into parts, and how the separate parts will be related and coordinated. Consistent logic in making those decisions is obviously preferable to the random accumulation and allocation of tasks, and the skill to make such logical decisions obviously depends on technical as well as political expertise -- the skill of structural design. Since the university is an organization, it will be more effective if its structure is designed consciously by someone who understands not only the university in particular but also organization theory in general. It will be still more effective if the resultant structure is respected in practice, either followed diligently or changed.

In the American university, structure is less likely to reflect design logic than to reflect temporary preferences for dispensing personal power and prestige. At best, it may represent management's inability to obtain performance from an individual, followed by inevitably dysfunctional attempts to design a means of bypassing the weak

In the American university, structure is less likely to reflect design logic than to reflect temporary preferences for dispensing personal power and prestige.

performer. Just as often, since everyone wishes to report as high as possible in the hierarchy, the effective organization of work roles is sacrificed to the narrow interests of an incumbent. Worse yet, demands from the outside also lead to illogical structures meant for display rather than function. (Consider, as an example of all three mistakes, the positioning of an affirmative action role outside of the personnel office.) It is not surprising to hear the university classified as a type of "anarchy"!

Nevertheless, a rational structure is entirely feasible if design follows a fundamental sequence: first, goals derived from organizational purpose; second, functions that make goals operational; third, the tasks that constitute each function; fourth, positions responsible for one or more tasks; fifth, administrative units formed by grouping positions; sixth, communication channels and lines of executive authority; and finally, assignment of persons to positions. An individual may occupy more than one position at a time or may rotate among positions, but one does not create a position first and then assign tasks to it. The order is critical.

The tools of design are contained in the body of scientific work outlined in this paper, and the outline by itself should provide an experienced administrator with enough information for elementary design analysis. The analyst must be able to locate task boundaries (Is academic advising closer to teaching or to psychological counseling?); to distinguish line from staff services (Will a legal officer make managerial decisions or simply advise those who do?); to identify services critical to internal operations (How important is it for an academic department to manage its own plant facility, library, or computer satellite?); to detect the potential for staff officers to make line decisions (Could the personnel staff control hiring or discipline of employees?); to observe status discrepancies within a single echelon (Are academic deans equal in role or can one coerce another?); to see the difference between program management and matrix (Is a research project managed within a single independent research unit or within a group of coordinated instructional units?); to recognize role conflict (Can the vice-president in charge of internal support functions also control the budget?); and to discern whether expertise is consistent with authority (Does a physical scientist administer campus social services?). The analyst must also understand that the university has a "production technology" in the sense that instruction has many operational routines, even though we hope that what occurs between student and teacher is never entirely routine.

Functions in any type of organization generally serve one of two major endeavors: (1) direct or indirect pursuit of the formal organizational purpose, and (2) maintenance of the organization itself. In a university the major purpose functions typically include academic instruction, student services, creative arts and sciences (research), and public service. The maintenance functions performed internally are financial and supply services, facilities and communications, personnel services, data processing, and security; the maintenance functions performed externally are financial development, alumni affairs, and public and governmental relations. Planning, budget, and personnel control are not functions in this distributive sense (just as policy control is not) but are responsibilities of the chief executive, for which he may have the help of executive assistants, and which he may delegate in varying degrees to all line officers.

Functions in any type of organization generally serve one or two major endeavors: (1) direct or indirect pursuit of the formal organziational purpose, and (2) maintenance of the organization itself.

The boundaries that apparently separate many of these functions create some rather automatic assumptions about design of the organization, but the fact is that most of those assumptions serve only to limit imagination and creativity. While there is no shortage of monstrous university structures, some unusual designs are as logical as they are inventive. The university of California at San Francisco, for example, combines personnel and student services under one vice-chancellor, indicating a human resources approach that encompasses staff and students. Two State University of New York campuses have organized security, facilities, and student services together under a vice-president, indicating a community management approach to the campus as a living environment.

Specific design characteristics will vary with institutional environment, size, and goals; but one fact emerges clearly: Skillful design of the organization structure can measurably enhance the effectiveness of every higher education profession within the university.

Skillful design of the organization structure can measurably enhance the effectiveness of every higher education profession within the university.

Bibliography

To order documents in the bibliography identified by an ED number, write to ERIC Document Reproduction Service (EDRS), Computer Microfilm International Corporation, P.O. Box 190, Arlington, VA 22210. Documents with HE numbers are presently being processed by EDRS and will be assigned ED numbers upon publication in Research in Education (RIE). In ordering, ED numbers must be specified. MF indicates microfiche and HC denotes hard copy; payment must accompany orders of less than $10.00; and all orders must be in writing.

BIBLIOGRAPHY

Allen, Stephen A., III. "Corporate-divisional Relationships in Highly Diversified Firms." In Studies in Organization Design, edited by Jay W. Lorsch and Paul R. Lawrence, pp. 16-35. Homewood, Ill.: Richard D. Irwin, 1970.

Argyris, Chris. Understanding Organizational Behavior. Homewood, Ill.: Dorsey Press, 1960.

Baldridge, J. Victor; Curtis, David V.; Ecker, George; and Riley, Gary L. Policy Making and Effective Leadership. San Francisco: Jossey-Bass, 1978.

Barnard, Chester I. The Functions of the Executive. Cambridge: Harvard University Press, 1938.

Bavelas, Alex and Barrett, Dermot. "An Experimental Approach to Organizational Communication." Personnel 27 (1951): 366-371.

Becker, Selwyn and Baloff, Nicholas. "Organization Structure and Complex Problem Solving." Administrative Science Quarterly 14 (1969): 260-271.

Blau, Peter M. The Organization of Academic Work. New York: John Wiley and Sons, 1973.

Blau, Peter M. and Schoenherr, Richard A. The Structure of Organizations. New York: Basic Books, 1971.

Boland, Walter R. "Size, External Relations, and the Distribution of Power: A Study of Colleges and Universities." In Comparative Organizations, edited by Wolf V. Heydebrand, pp. 428-441. Englewood Cliffs, N.J.: Prentice-Hall, 1973.

Brewer, John. "Flow of Communications, Expert Qualifications, and Organizational Authority Structures." American Sociological Review 36 (1971): 475-484.

Burns, James. "Effective Management of Programs." In Studies in Organization Design, edited by Jay W. Lorsch and Paul R. Lawrence, pp. 140-152. Homewood, Ill.: Richard D. Irwin, 1970.

Burns, Tom and Stalker, G.M. The Management of Innovation. London: Tavistock Publications, 1961.

Chandler, Alfred D., Jr. Strategy and Structure. Garden City: Doubleday, 1966.

Cyert, Richard M. and March, James G. A Behavioral Theory of the Firm. Englewood Cliffs, N.J.: Prentice-Hall, 1963.

Dalton, Gene W.; Lawrence, Paul R.; and Lorsch, Jay W., eds. Organizational Structure and Design. Homewood, Ill.: Richard D. Irwin and Dorsey Press, 1970.

Davis, Stanley M. and Lawrence, Paul R. Matrix. Reading, Mass: Addison-Wesley, 1977.

Delbecq, Andre L.; Shull, Fremont A.; Filley, Alan C.; and Grimes, Andrew J. Matrix Organization: A Conceptual Guide to Organizational Variation. Madison: University of Wisconsin Bureau of Business Research and Service, 1969.

Etzioni, Amitai. A Comparative Study of Complex Organizations. New York: Crowell-Collier, Free Press, 1961.

Evans, Peter B. "Multiple Hierarchies and Organizational Control." Administrative Science Quarterly 20 (1975): 250-259.

Galbraith, Jay. Designing Complex Organizations. Reading, Mass.: Addison-Wesley, 1973.

Galbraith, Jay. Organization Design. Reading, Mass.: Addison-Wesley, 1977.

Golembiewski, Robert T. "Authority as a Problem in Overlays: A Concept for Action and Analysis." Administrative Science Quarterly 9 (1964): 23-49.

Gross, Edward and Grambsch, Paul V. Changes in University Organization, 1964-71. New York: McGraw-Hill, 1974.

Gulick, Luther and Urwick, Lyndall F. Papers on the Science of Administration. New York: Columbia University Institute of Public Administration, 1937.

Herbst, P. G. Socio-Technical Design: Strategies in Multidisciplinary Research. London: Tavistock Publications, 1974.

Heydebrand, Wolf V. "Autonomy, Complexity, and Non-bureaucratic Coordination in Professional Organizations." In Comparative Organizations, edited by Wolf V. Heydebrand, pp. 158-189. Englewood Cliffs, N.J.: Prentice-Hall, 1973.

Heydebrand, Wolf, ed. Comparative Organizations. Englewood Cliffs, N.J.: Prentice-Hall, 1973.

Hinings, C. R.; Hickson, D. J.; Pennings, J.M.; and Schneck, R. E. "Structural Conditions of Intraorganizational Power." Administrative Science Quarterly 19 (1974): 22-44.

Khandwalla, Pradip N. The Design of Organizations. New York: Harcourt Brace Jovanovich, 1977.

Kingdon, Donald R. Matrix Organization. London: Tavistock Publications, 1973.

Kriesberg, Louis. "Organizations and Interprofessional Cooperation." In Comparative Organizations, edited by Wolf V. Heydebrand, pp. 242-268. Englewood Cliffs, N.J.: Prentice-Hall, 1973.

Krupp, Sherman. Pattern in Organizational Analysis: A Critical Examination. Philadelphia: Chilton, 1961.

Lawrence, Paul R. and Lorsch, Jay W. Organization and Environment: Managing Differentiation and Integration. Cambridge: Harvard Graduate School of Business Administration, 1967.

Likert, Rensis. New Patterns of Management. New York: McGraw-Hill, 1961.

Likert, Rensis. The Human Organization. New York: McGraw-Hill, 1967.

Litterer, Joseph A. The Analysis of Organizations, 2nd ed. New York: John Wiley and Sons, 1973.

Lorsch, Jay W. "Introduction to the Structural Design of Organizations." In Organizational Structure and Design, edited by Gene W. Dalton et al., pp. 1-16. Homewood, Ill.: Richard D. Irwin and Dorsey Press, 1970.

Lorsch, Jay W. and Lawrence, Paul R., eds. Studies in Organization Design. Homewood, Ill.: Richard D. Irwin, 1970.

Mansfield, Roger. "Bureaucracy and Centralization: An Examination of Organization Structure." Administrative Science Quarterly 18 (1973): 477-488.

McGregor, Douglas. The Human Side of Enterprise. New York: McGraw-Hill, 1960.

McHenry, Dean E. and Associates. Academic Departments. San Francisco: Jossey-Bass, 1977.

McKelvey, Bill and Kilmann, Ralph H. "Organizational Design: A Participative Multivariate Approach." Administrative Science Quarterly 20 (1975): 24-36.

Meyer, Marshall W. Bureaucratic Structure and Authority. New York: Harper and Row, 1972.

Miller, Eric J. "Technology, Territory, and Time." Human Relations 12 (1959): 243-272.

Miller, Eric J. and Rice, A. R. Systems of Organization. London: Tavistock Publications, 1967.

Newman, Derek. Organization Design. London: Edward Arnold, 1973.

Ouichi, William G. "The Relationship between Organizational Structure and Organizational Control." Administrative Science Quarterly 22 (1977): 95-113.

Parsons, Talcott and Platt, Gerald M. The American University. Cambridge: Harvard University Press, 1973.

Perrow, Charles. Organizational Analysis. Belmont, Cal.: Wadsworth, 1970.

Reif, William E. Computer Technology and Management Organization. Iowa City: University of Iowa Bureau of Business and Economic Research, 1968.

Simon, Herbert. Administrative Behavior. New York: MacMillan, 1949.

Simon, Herbert. The New Science of Management Decisions. Rev. ed. Englewood Cliffs, N.J.: Prentice-Hall, 1977.

Thompson, James D., ed. Approaches to Organizational Design. Pittsburgh: University of Pittsburgh Press, 1966.

Thompson, James D. Organizations in Action. New York: McGraw-Hill, 1967.

Thompson, Victor A. Modern Organization. New York: Alfred A. Knopf, 1962.

Triandis, Harry C. "Notes on the Design of Organizations." In Approaches to Organizational Design, edited by James D. Thompson, pp. 57-102. Pittsburgh: University of Pittsburgh Press, 1966.

Walker, Arthur H. and Lorsch, Jay W. "Organizational Choice: Product Versus Function." In Studies in Organization Design, edited by Jay W. Lorsch and Paul R. Lawrence, pp. 36-53. Homewood, Ill.: Richard D. Irwin, 1970.

Woodward, Joan. Industrial Organization: Theory and Practice. London: Oxford University Press. 1965.

Worthy, James C. "Organizational Structure and Employee Morale." American Sociological Review 15 (1950): 169-179.

Administrator's Update is prepared by the ERIC Clearinghouse on Higher Education, The George Washington University, D.C. Series Editor is Glenn M. Nelson, Associate Professor of Higher Education at the University of Pittsburgh. The material in this publication was prepared pursuant to a contract with the National Institute of Education, U.S. Department of Health, Education and Welfare. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Prior to publication, the manuscript was submitted to the American Association of University Administrators for critical review and determination of professional competence. This publication has met such standards. Points of view or opinion, however, do not necessarily represent the official view or opinions of either the AAUA or the National Institute of Education.

Copies of Administrator's Update may be ordered for 50¢ each from the American Association of University Administrators, P.O. Box 536, Oneonta, N.Y., 13820. Payment must accompany all orders under $15.

ADMINISTRATORS UPDATE
INSTITUTE FOR HIGHER EDUCATION
UNIVERSITY OF PITTSBURGH
PITTSBURGH, PA. 15260

Non-Profit Organ.
U.S. POSTAGE
PAID
Pittsburgh, PA
Permit No. 511